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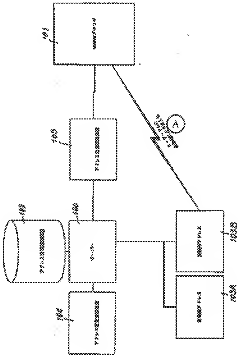
(54) [Title] ACCESS REQUEST PROCESSING METHOD AND DEVICE IN SERVER MACHINE AS WELL AS ADDRESS BOOK MANAGEMENT METHOD AND DEVICE IN CLIENT MACHINE

(57) Abstract (amended)
Problem

A user who has accessed a targeted home page can continuously access that home page even after the address has changed, and there is no need to notify the user about the address change on the side of the home page manager.

Means to solve

An address conversion table that associates the address before the change with the address after the change is stored with respect to a user's individual region that has undergone address change. If there is a change in the address for an access request sent from a client machine, the address for said access request is used as the key to convert the address before the change to the address after the change with reference to said address conversion table. The user's individual region concerned is accessed based on the address after the change obtained from the conversion, and its stored information is sent to the client machine.



Key:		
	A	The user can see automatically
	100	Server
	101	WWW browser
	102	Address change storage device
	103A	Home page region at the address before change
	103B	Home page region at the address after change
	104	Address change registration device
	105	Automatic address conversion device

[There are no amendments to this patent.]

Claims

1. An access request processing device in a server machine used to process the access request from a client machine in a server machine having a plurality of Internet home pages or other users' individual regions, characterized by having

an address conversion table storage means that stores an address conversion table that associates the address before the change with the address after the change with respect to a user's individual region that has undergone an address change among said plurality of users' individual regions, an address conversion means that converts the address before the change to the address after the change with reference to said address conversion table by using the address for an access request as the key when there is change in said address for the access request received from a client machine, and

a new address storage information transmission means that accesses the user's individual region concerned based on the address after the change obtained from said conversion and sends out its stored information to the client machine.

2. The access request processing device in a server machine described in Claim 1, characterized by the fact that said new address storage information transmission means sends information indicating that the address of the user's individual region has been changed to the client machine in addition to sending out said new address storage information.

3. The access request processing device in a server machine described in Claim 2, characterized by the fact that at least the address after the change is included in said information indicating that the address of the user's individual region has been changed.

4. An address book management device in a client machine used to manage an address book kept in a client machine in order to send an access request from that client machine to a server machine having a plurality of users' individual regions, such as the Internet home pages and email mailboxes, characterized by having

an access request transmission means that reads out the address of a desired destination from said address book and sends an access request to the user's individual region concerned,

a server information reception means that receives the server information from the server machine in response to the transmission of said access request,

an address change judgment means that determines the presence/absence of the information indicating that the address of the user's individual region concerned has been changed in the aforementioned received server information, and

an address book changing means that changes the address in said address book depending on the address after the change included in the information when it is found that there is information indicating that the address of the user's individual region concerned has been changed.

5. An access request processing method in a server machine for processing the access request sent from a client machine in a server machine having a plurality of users' individual regions, such as Internet home pages, characterized by having the following steps:

a first step for storing an address conversion table that associates the address before the change with the address after the change with respect to a user's individual region that has undergone an address change among said plurality of users' individual regions, a second step for converting the address before the change to the address after the change with reference to said address conversion table by using the address for an access request as the key when there is change in said address for the access request received from a client machine, and

a third step for accessing the user's individual region concerned based on the address after the change obtained from said conversion and sending out its stored information to the client machine.

6. The access request processing method in a server machine described in Claim 5, characterized by the fact that in the aforementioned third step, information indicating that the address of the user's individual region has been changed is also sent to the client machine in addition to sending out said new address storage information.

7. The access request processing method in a server machine described in Claim 6, characterized by the fact that at least the address after the change is included in said information indicating that the address of the user's individual region has been changed.

8. An address book management method in a client machine for managing an address book kept in a client machine in order to send an access request from that client machine to a server machine having a plurality of users' individual regions, such as the Internet home pages and email mailboxes, characterized by having the following steps:

a step for reading out the address of a desired destination from said address book and sending an access request to the user's individual region concerned,

a step for receiving the server information from the server machine in response to the transmission of said access request,

a step for determining the presence/absence of the information indicating that the address of the user's individual region concerned has been changed in the aforementioned received server information, and

a step for changing the address in said address book depending on the address after the change included in the information when it is found that there is information indicating that the address of the user's individual region concerned has been changed.

Detailed explanation of the invention

[0001]

Technical field of the invention

The present invention pertains to an access request processing method and device in a server machine as well as an address book management method and device in a client machine for avoiding inconvenience to the user who wants to access information when the address of an Internet home page or email mailboxes has been changed.

[0002]

Prior art

Home pages have been opened by various organizations and individuals in the server machines on the WWW of the Internet. There are a lot of people using browsers to obtain various kinds of information by accessing these home pages. The address of a home page may be changed at the convenience of the developer or the provider.

[0003]

Problems to be solved by the invention

However, once home pages are publicized, since a lot of people are accessing the popular home pages, if the data structure or address of a popular home page is changed, many users who used to have access to that home page will not be able access it. This will cause confusion. Additionally, it is also troublesome to the author of the home page since he (or she) needs to publish the address and the content of the home page after the change.

[0004]

The objective of the present invention is to solve the aforementioned problem by making it possible for a user who used to access a home page before an address change to access that home page continuously even after the address is changed and by saving the home page manager the trouble of notifying the user even if the address is changed.

[0005]

Means to solve the problems

The invention described in Claim 1 of the present patent application provides an access request processing device in a server machine used to process the access request from a client machine in a server machine having a plurality of Internet home pages or other users' individual regions. This device is characterized by having an address conversion table storage means that stores an address conversion table that associates the address before the change with the address after the change with respect to a user's individual region that has undergone an address change among said plurality of users' individual regions, an address conversion means that converts the address before the change to the address after the change with reference to said address conversion table by using the address for an access request as the key when there is change in said address for the access request received from a client machine, and a new address storage information transmission means that accesses the user's individual region concerned based on the address after the change obtained from said conversion and sends out its stored information to the client machine.

[0006]

According to the invention described in Claim 1, since the address change from the old address to the new address is performed automatically, the user who has access to a targeted home page before the address change can continuously access that home page in the conventional method even after the address has been changed. On the other hand, there is no need for the home page manager to notify the user in spite of the change in the address.

[0007]

According to the invention described in Claim 2 of the present patent application, the access request processing device in a server machine described in Claim 1 is characterized by the fact that said new address storage information transmission means sends information indicating that the address of the user's individual region has been changed to the client machine in addition to sending out said new address storage information.

[0008]

According to the invention described in Claim 2, although the targeted home page can be accessed by the conventional method, this is realized by the execution of the automatic address change function. It is also possible to notify the user that the actual address has been changed.

[0009]

According to the invention described in Claim 3 of the present patent application, the access request processing device in a server machine described in Claim 2 is characterized by the fact that at least the address after the change is included in said information indicating that the address of the user's individual region has been changed.

[0010]

According to the invention described in Claim 3, it is possible to inform the user of the actual address of the home page accessed by execution of the automatic address change function.

[0011]

The invention described in Claim 4 of the present patent application provides an address book management device in a client machine used to manage an address book kept in a client machine in order to send an access request from that client machine to a server machine having a plurality of users' individual regions, such as the Internet home pages and email mailboxes. This device is characterized by having an access request transmission means that reads out the address of a desired destination from said address book and sends an access request to the user's individual region concerned, a server information reception means that receives the server information from the server machine in response to the transmission of said access request, an address change judgment means that determines the presence/absence of the information indicating that the address of the user's individual region concerned has been changed in the aforementioned received server information, and an address book changing means that changes the address in said address book depending on the address after the change included in the information when it is found that there is information indicating that the address of the user's individual region concerned has been changed.

[0012]

According to the invention described in Claim 4, if the address of a home page that has been accessed is changed, the information indicating the change is returned. In this way, the address book on the side of the client machine can be automatically revised.

[0013]

The invention described in Claim 5 of the present patent application provides an access request processing method in a server machine for processing the access request sent from a client machine in a server machine having a plurality of users' individual regions, such as Internet home pages. This method is characterized by having the following steps: a first step for storing an address conversion table that associates the address before the change with the address after the change with respect to a user's individual region that has undergone an address change among said plurality of users' individual regions, a second step for converting the address before the change to the address after the change with reference to said address conversion table by using the address for an access request as the key when there is a change in said address for the access request received from a client machine, and a third step for accessing the user's individual region concerned based on the address after the change obtained from said conversion and sending out its stored information to the client machine.

[0014]

According to the invention described in Claim 6 of the present patent application, the access request processing method in a server machine described in Claim 5 is characterized by the fact that in the aforementioned third step, information indicating that the address of the user's individual region has been changed is also sent to the client machine in addition to sending out said new address storage information.

[0015]

According to the invention described in Claim 7 of the present patent application, the access request processing method in a server machine described in Claim 6 is characterized by the fact that at least the address after the change is included in said information indicating that the address of the user's individual region has been changed.

[0016]

The invention described in Claim 8 provides an address book management method in a client machine for managing an address book kept in a client machine in order to send an access request from that client machine to a server machine having a plurality of users' individual regions, such as the Internet home pages and email mailboxes. This method is characterized by having the following steps: a step for reading out the address of a desired destination from said address book and sending an access request to the user's individual region concerned, a step for receiving the server information from the server machine in response to the transmission of said access request, a step for determining the presence/absence of the information indicating that the address of the user's individual region concerned has been changed in the aforementioned received server information, and a step for changing the address in said address book depending on the address after the change included in the information when it is found that there is information indicating that the address of the user's individual region concerned has been changed.

[0017]

In the aforementioned claims, the "Internet home page or other user's individual region" refers to not only to home pages but also other users' individual regions, such as the mailbox region for emails and the BBS region.

[0018]

Embodiment of the invention

In the following, a preferred embodiment of the present invention will be explained in detail with reference to the attached figures.

[0019]

Figure 1 is a block diagram schematically illustrating the overall configuration of a client/server system on the Internet to which an embodiment of the present invention is applied. In this figure, symbol 100 represents one of the plurality server machines provided on the Internet. Many users' individual regions corresponding to home pages are opened on said server machine 100. As to be explained in detail later, each of these user's individual regions has an intrinsic address (home page address).

[0020]

On the other hand, in the figure, symbol 101 represents a WWW browser equipped on the side of a client machine and used to access the home pages on the Internet. Said WWW browser 101 is, for example, "Netscape" or "Mosaic."

[0021]

The user who wants to access a home page on the Internet uses said WWW browser 101 to send out the address of that home page on the Internet. At that time, however, if the address of the home page is changed in the server machine, the user cannot access the information of the targeted home page.

[0022]

The present invention is designed such that the user can access a home page using the address before the change without any problem even if the address of that home page has been changed.

[0023]

In other words, address change storage device 102 functions as an address change table storage means, which stores an address conversion table that associates the address before the change with the address after the change with respect to a user's individual region that has undergone an address change among said plurality of home page regions (users' individual regions) opened on server machine 100.

[0024]

In the figure, symbol 103A represents the home page region corresponding to the home page address before the change. Symbol 103B represents the home page region corresponding to the home page address after the change.

[0025]

Also, in this example, as shown in Figures 2(a)-(c), the address of server machine 100 is http://www.omron.co.jp. The address of the home page region before the change is http://www.omron.co.jp/home/maekawa/test.html. The address of the home page region after the change is http://www.omron.co.jp/home/maekawa/sample/test.html.

[0026]

Figure 6 shows an example of the address conversion table stored in address change storage device 102. As can be seen from the figure, the address of the home page region before the change (http://www.omron.co.jp/home/maekawa/test.html) and the address of the home page after the change (http://www.omron.co.jp/home/maekawa/sample/test.html) are stored in the address conversion table in association with each other.

[0027]

Address change registration device 104 is used to register the address of the home page region before the change and the address of the home page region after the change in association with each other in the address conversion table if the address of a home page region has been changed. As to be explained detail later, the actual registration operation is shown in the flow chart illustrated in Figure 3.

[0028]

Automatic address conversion device 105 functions as an address conversion means, which converts the address before the change to the address after the change with reference to said address conversion table by using the address for an access request as the key when there is a change in the address for the access request sent from a client machine, and as a new address storage information transmission means, which accesses the user's individual region based on the address after the change obtained from said conversion and sends out its stored information to the client machine. As to be explained in detail later, the operation of said automatic address conversion and the operation of the new address storage information transmission are shown in the flow chart illustrated in Figure 4. The function of said automatic address conversion device 105 can be provided on the side of the server machine or on the side of the client machine.

[0029]

On the other hand, a new function related to the present invention is added to WWW browser 101 equipped in the client machine. The operation of its main parts is show in the flow chart illustrated in Figure 5. Figure 7 shows a screen display example on the side of the client machine.

[0030]

In the following, the operation of each functional element on the aforementioned server machine side and the client machine side will be explained in detail with reference to the flow charts shown in Figures 3-5.

[0031]

If the address of one of the home page regions open in the server machine is changed, as shown in Figure 3, an address change registration request from the user performed by a prescribed input operation is first received in address change registration device 104 (step 301). The user waits to input the address before the change (http://www.omron.co.jp/home/maekawa/test.html) and the address of the home page after the change (http://www.omron.co.jp/home/maekawa/sample/test.html) (steps 302, 303). The input address before the change is used as the key, while the address after the change is used as the value (value). They are stored in the address change table in address change storage device 102 as indicated by symbols 601, 602 in Figure 6 (step 304).

[0032]

Then, when an access request arrives from the side of the client machine, as shown in Figure 4, after receiving said access request (step 401), automatic address conversion device 105 fetches the address included in that request (step 402). Then, it is determined in automatic address conversion device 105 whether the address is changed (step 403). This judgment can be made by trying to access the home page under that address and determining whether there is a normal response. If it is found that the address is not changed (NO in step 403), the stored information is read out from the home page region under that address (http://www.omron.co.jp/home/maekawa/test.html), and the read stored information is sent out to the client machine (step 404).

[0033]

If it is found that the address is changed (YES in step 403), that address (http://www.omron.co.jp/home/maekawa/test.html) is used as the look-up key in the address conversion table (Figure 6) registered in address change storage device 102 (step 405). Then, the stored information is read out from the home page region at the address after the change (http://www.omron.co.jp/home/maekawa/sample/test.html) (step 406). Then, after the new address after the change (http://www.omron.co.jp/home/maekawa/sample/test.html) is added into the read out stored information (step 407), the obtained home page information and the new address information are sent out to the client machine (step 408).

[0034]

In the following, the operation of WWW browser 101 equipped in the client machine will be explained in detail with reference to the flow chart shown in Figure 5. After a request for accessing a targeted home page is sent from the side of WWW browser 101 to the server machine through automatic address conversion device 105 (step 501), the device stands by and waits for a return of the information from the server machine through automatic address conversion device 105 (step 502). If it is found that the address is not changed as a result of receiving the information returned from the server machine, the information in the home page region returned from the server machine is displayed on the screen of the client machine in the conventional way (step 503).

[0035]

On the other hand, if it is found that the address is not changed [sic; is changed] as a result of receiving the information returned from the server machine, as shown in Figure 7, a message indicating that the address of the home page region has been changed and the address after the changed added to the returned information (http://www.omron.co.jp/home/maekawa/sample/test.html) are displayed along with the address before the change (http://www.omron.co.jp/home/maekawa/test.html) in the top part of the screen (step 504).

[0036]

Also, the WWW browser 101 on the side of the client machine rewrites the destination address (http://www.omron.co.jp/home/maekawa/test.html) with the address after the change returned from the server machine (http://www.omron.co.jp/home/maekawa/sample/test.html) if the destination address is stored in the address book (step 505).

[0037]

After that, as shown in Figure 7, the information stored in the home page region returned from the server machine is displayed in the lower region that almost covers the entire screen (step 506).

[0038]

Therefore, according to the screen display shown in Figure 7, the user can confirm the content of the accessed page and immediately knows that the address has been changed. In addition, since the address book in WWW browser 101 is revised automatically, even after the page address has been changed, the user can still access the targeted home page in the conventional way. Even after said automatic conversion service is ended, the user can continuously access the targeted home page without any problem based on the address book after the change.

[0039]

In the aforementioned embodiment, the present invention is applied to the address of a home page region on the Internet. The present invention can also be applied to the address of email mailboxes or the address of electronic boards.

[0040]

The aforementioned automatic address conversion service can be started either at the time when the address change is registered or when the address changer sends a request for the change to the server. Similarly, said service can be ended either after a certain period has elapsed since the beginning of the service or when the access frequency drops below a certain level or when the address changer sends a request for ending the service to the server machine.

[0041]

Effect of the invention

As explained above, according to the present invention, the user who has access to a home page before the address is changed can continuously access that home page in the conventional way even after the address is changed. On the other hand, there is no need for the home page manager to notify the user even if the address is changed.

Brief description of figures

Figure 1 is a block diagram schematically illustrating the configuration of an entire client/server system to which an embodiment of the present invention is applied.

Figure 2 is a diagram explaining the server address, the home page address before change, and the home page address after change in an embodiment of the present invention.

Figure 3 is a flow chart explaining the address change registration processing in an embodiment of the present invention.

Figure 4 is a flow chart explaining the automatic address conversion processing and the new address storage information transmission processing in an embodiment of the present invention.

Figure 5 is a flow chart explaining the access request issuing processing and the address book qualitilization processing in an embodiment of the present invention.

Figure 6 is a diagram explaining the address conversion table in an embodiment of the present invention.

Figure 7 is a diagram explaining the screen displayed on the client machine in an embodiment of the present invention.

Explanation of symbols

100	Server machine
101	WWW browser
102	Address change storage device
103A	Home page region at the address before change
103B	Home page region at the address after change
104	Address change registration device

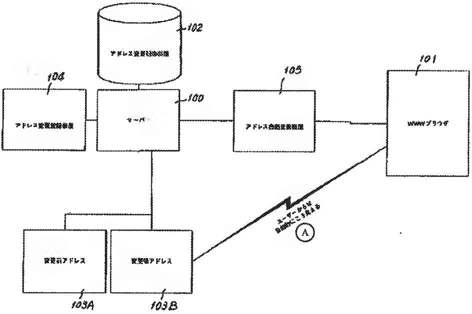


Figure 1

Key:	A	The user can see automatically
	100	Server machine
	101	WWW browser
	102	Address change storage device
	103A	Home page region at the address before change
	103B	Home page region at the address after change
	104	Address change registration device
	105	Automatic address conversion device

サーバ
http://www.omron.co.jp
(a)

変更前アドレス
http://www.omron.co.jp/home/maekawa/test.html
(b)

変更後アドレス
http://www.omron.co.jp/home/maekawa/sample/test.html
(c)

Figure 2

Key:		
	a	Server
	b	Address before change
	c	Address after change

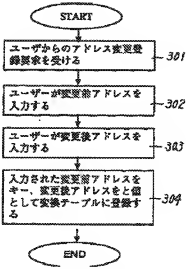

START
ユーザからのアドレス変更登録要求を受ける
301
ユーザーが変更前アドレスを入力する
302
ユーザーが変更後アドレスを入力する
303
入力された変更前アドレスをキー、変更後アドレスをと値として変換テーブルに登録する
304
END

Figure 3

Key:		
	301	Receive address change registration request from the user
	302	The user inputs the address before change
	303	The user inputs the address after change
	304	Register the input address before change and the address after change as key and value in the conversion table, respectively

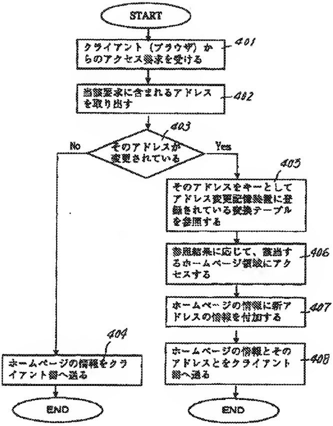

START
クライアント（ブラウザ）からのアクセス要求を受ける
401
当該要求に含まれるアドレスを取り出す
402
そのアドレスが変更されている
403
No
Yes
そのアドレスをキーとしてアドレス変更記憶装置に登録されている変換テーブルを参照する
405
参照結果に応じて、該当するホームページ領域にアクセスする
406
ホームページの情報に新アドレスの情報を付加する
407
404
ホームページの情報をクライアント側へ送る
ホームページの情報とそのアドレスとをクライアント側へ送る
408
END
END

Figure 4

Key:	401	Receive access request from the client (browser)
	402	Fetch the address included in the request
	403	Has the address changed?
	404	Send the information of the home page to the client side
	405	Look up in the conversion table registered in the address change storage device with the address used as the key
	406	Access the appropriate home page region corresponding to the result of the search
	407	Add the information of the new address to the information of the home page
	408	Send the information of the home page and its address to the client side

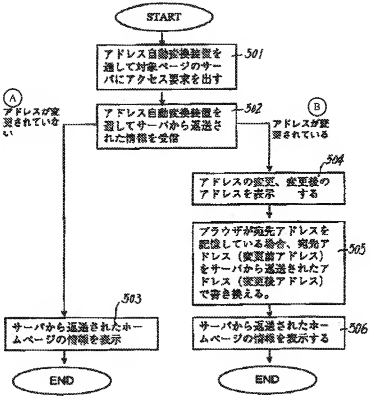
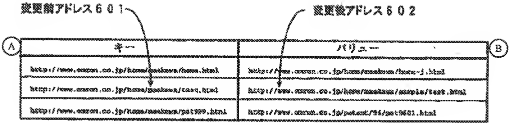

START
アドレス自動変換装置を通して対象ページのサーバにアクセス要求を出す
501
Ⓐ
アドレスが変更されていない
アドレス自動変換装置を通してサーバから返送された情報を受信
502
Ⓑ
アドレスが変更されている
504
アドレスの変更、変更後のアドレスを表示 する
ブラウザが宛先アドレスを記憶している場合、宛先アドレス（変更前アドレス）をサーバから返送されたアドレス（変更後アドレス）で書き換える。
505
503
サーバから返送されたホームページの情報を表示
サーバから返送されたホームページの情報を表示する
506
END
END

Figure 5

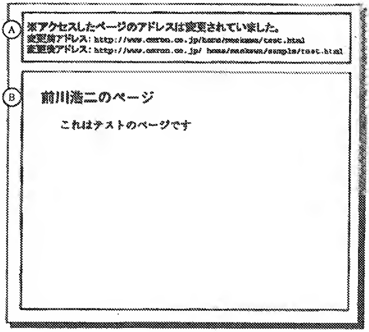
Key:		
	A	The address is not changed
	B	The address is changed
	501	Send a request for accessing a home page to the server through the automatic address conversion device
	502	Receive the information returned from the server through the automatic address conversion device
	503	Display the information of the home page returned from the server
	504	Display the change of the address and the address after the change
	505	Rewrite the destination address (the address before the change) with the address returned from the server (the address after the change) if the destination address is stored in the browser
	506	Display the information of the home page returned from the server


変更前アドレス６０１
変更後アドレス６０２
A
B

キー	バリュー
http://www.omron.co.jp/home/maekawa/home.html	http://www.omron.co.jp/home/maekawa/home-j.html
http://www.omron.co.jp/home/maekawa/test.html	http://www.omron.co.jp/home/maekawa/sample/test.html
http://www.omron.co.jp/home/maekawa/pat999.html	http://www.omron.co.jp/patent/96/pat9601.html

Figure 6

Key:	A	Key
	B	Value
	601	Address before change
	602	Address after change



※アクセスしたページのアドレスは変更されていました。
変更前アドレス：http://www.omron.co.jp/home/maekawa/test.html
変更後アドレス：http://www.omron.co.jp/ home/maekawa/sample/test.html

前川浩二のページ

これはテストのページです

Figure 7

Key:	A	The address of the accessed home page has been changed. Address before the change Address after the change
	B	Home page of Koji Maekawa This is a test page

Continued from front page

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